

### **THE CLAIMS**

1-22 (Cancelled)

23. (Previously Presented) A nuclear voltaic cell configured to generate an electrical current, comprising:

a first metal contact layer having a first side;

a second metal contact layer having a first side, wherein said first side of said second metal contact layer is positioned facing said first side of said first metal contact layer and forms a channel between said first and second metal contact layers;

a liquid semiconductor located within said channel and in contact with said first side of said first metal contact layer and in contact with said first side of said second metal contact layer, wherein said liquid semiconductor contains a radioactive isotope in solution and said first side of said first metal contact layer forms a Schottky contact with said liquid semiconductor, and said first side of said second metal contact layer forms a low resistance or ohmic contact with said liquid semiconductor, and wherein said liquid semiconductor comprises at least one chalcogen, said chalcogen selected from the group consisting essentially of sulfur, selenium and tellurium; and

an electrical circuit connecting said first metal contact layer to said second metal contact layer.

24. (Previously Presented) A nuclear voltaic cell according to claim 23 further comprising:

an electrical load connected to said electrical circuit, wherein electrical power is generated when said electrical load is connected to said electrical circuit.

25. (Original) A nuclear voltaic cell according to claim 23, wherein said liquid semiconductor is a p-type semiconductor.

26. (Withdrawn) A nuclear voltaic cell according to claim 23, wherein said liquid semiconductor is an n-type semiconductor.

27. (Previously Presented) A nuclear voltaic cell according to claim 23, further comprising:

a plurality of nonconductive spacers abutted between said first side of said first metal contact layer and said first side of said second metal contact layer to maintain said channel between said first and second metal contact layers, wherein with said liquid semiconductor within said channel surrounds said plurality of nonconductive spacers.

28. (Previously Presented) A nuclear voltaic cell according to claim 23, wherein said liquid semiconductor flows through said channel between said first metal contact layer and said second metal contact layer.

29. (Previously Presented) A nuclear voltaic cell according to claim 23, further comprising:

a mandrel, wherein said first metal contact layer and said second metal contact layer with said channel therebetween are wound around said mandrel to form the cell.

30-78 (Cancelled)

79. (Previously Presented) A nuclear voltaic cell according to claim 23, further comprising at least one nonconductive spacer situated between said first side of said first metal contact layer and said first side of said second metal contact layer to maintain said channel between said first and second metal contact layers.

80. (Previously Presented) A nuclear voltaic cell according to claim 23, wherein said liquid semiconductor comprises selenium.

81. (Previously Presented) A nuclear voltaic cell according to claim 23, wherein said liquid semiconductor is a mixture comprising said chalcogen.

82. (Previously Presented) A nuclear voltaic cell according to claim 23, wherein said liquid semiconductor is an alloy comprising said at least one chalcogen and a metal.